



Scientific Supercomputing

Meeting the Next Decade National Challenges via Integration of Theory,
Experiments, Technology, and Large-Scale Simulation

Building 123 Auditorium

7:30	Continental Breakfast	
8:00	Welcome and Overview of the Laboratory.....	C. Bruce Tarter
8:15	Role of Science in the NNSA	General John Gordon
8:30	University of California Perspectives.....	C. Judson King
8:45	DOE Office of Science Perspectives.....	James Decker
9:00	LLNL Science and Technology	Jeffrey Wadsworth
9:15	Terascale Turbulence: Simulation of Scale Interactions in Richtmyer-Meshkov Mixing	William P. Dannevik
9:45	Break	
10:15	From the Supercomputer to the Grid	Larry Smarr
11:00	Computational Materials Science at the Terascale: Toward Predicting Materials Performance and Aging	Tomás Diaz de la Rubia
11:30	Scaling Astrophysics into the Laboratory	Jave O. Kane
12:00	Lunch (by invitation) and Poster Session	
2:00	Simulation: Changing the Nature of Scientific Discovery.....	David M. Cooper
2:30	Quantum Simulations of Condensed Matter Systems	Giulia A. Galli
3:00	Computational Biology	Michael E. Colvin
3:30	Break	
3:45	Pushing the Envelope of Global Climate Simulation.....	Starley L. Thompson
4:15	Application of Large-Scale Computer Simulations for Understanding Earthquake Phenomena	David B. McCallen
4:45	Closing Remarks	C. Bruce Tarter

Poster Session

Over 40 posters representing science and technology
across the Laboratory, including:

A Single Molecule Study of DNA-Protein Interactions

**FISH-Painted Chromosomes to Determine a Food-Mutagen-Induced
Signature in Cancerous Cells**

Surveying the Outer Solar System with Robotic Telescopes

**Environmental and Biomedical Research in the
Center for Accelerator Mass Spectrometry**

PEREGRINE: A New Technology for Radiation Treatment of Cancer

Metallic Properties of Dense Hydrogen

**Synthesis of Nanocrystals with Tunable Sizes and Properties
Using Short-Pulse Lasers**

**Application of Carbon Nanotube-Based Atomic Force Microscopy to
Proteomics and Biological Forensics**

Scientific Discovery Through Interactive Scientific Visualization

Atmospheric Dispersion Science for Emergency Response

**The Virtual Valley: An Integrative Tool for Environmental Research,
Education, Assessment, and Planning**

Protecting Information Networks

Guiding the Design of Biological Warfare Defenses with Bioinformatics

STARS: Science and Technology Awards and Recognition System